

AMENDMENTS TO THE CLAIMS:

1. (Currently amended) A system for identifying concerns, comprising:
a specifying device for specifying an initial concern in a software system; and
an identifying device for:
 using the initial concern to explore artifacts in said software system; and [[,]]
 based on a result of said using the initial concern to explore artifacts in said
software system, identifying a related concern in said software system having a relationship
with said initial concern, at least one of the initial and related concerns comprising an artifact
other than source code, said identifying said related concern comprising ~~;~~ ~~and~~ automatically
computing a content of said related concern based on said initial concern and said relationship
between said initial and related concerns.
2. (Previously presented) The system according to claim 1, wherein said initial concern
comprises a plurality of entities.
3. (Previously presented) The system according to claim 1, wherein said relationship
comprises a call to said initial concern.
4. (Previously presented) The system according to claim 1, wherein said relationship
comprises a call from said initial concern.
5. (Original) The system according to claim 1, wherein said relationship comprises a
same class that can be created by the concern, a same class that can be created from the
concern, a reference to same data as the initial concern, and a union or intersection of two
concerns.
6. (Original) The system according to claim 1, wherein said specifying device comprises
a query tool for inputting a query, such that said initial concern is returned as a result of said

query.

7. (Previously presented) The system according to claim 1, wherein said initial concern and said related concern comprise source code in said software system.

8. (Canceled)

9. (Original) The system according to claim 6, further comprising:
a navigating device for navigating said software system in an integrated development environment (IDE).

10. (Previously presented) The system according to claim 6, wherein said system is part of an integrated development environment (IDE) for displaying said initial concern and said related concern, and navigating said software system.

11. (Previously presented) The system according to claim 9, wherein said navigating device comprises a graphical user interface (GUI) for using said initial concern and said related concern to explore said software system and construct a new software system.

12. (Original) The system according to claim 9, wherein said navigating said software system comprises navigating said software system using both virtual and actual structuring of different artifacts within said software system.

13. (Original) The system according to claim 9, wherein said navigating said software system comprises using said navigating device to explore concerns and the relationships between said concerns based on a visual representation of query results.

14. (Original) The system according to claim 9, wherein said navigating device comprises a visual diagram which gives call relations between different parts of a program selected by query operators expressed as regular expressions.

15. (Previously presented) The system according to claim 1, wherein said identifying said related concern comprises automatically generating said related concern.
16. (Previously presented) The system according to claim 1, wherein said specifying device comprises at least one of a keyboard and a mouse for specifying said initial concern.
17. (Previously presented) The system according to claim 1, wherein said specifying said initial concern comprises defining a query language comprising a set of operators and evaluation properties that together work to identify concerns within different artifacts that make up a software system.
18. (Original) A concern manipulation environment (CME) comprising the system of claim 1.
19. (Previously presented) The concern manipulation environment of claim 18, wherein a data structure is maintained for keeping concerns in sync with changes in a software system.
20. (Previously presented) A system for identifying concerns, comprising:
 - a specifying device for specifying a query against artifacts related to software development, including software, generated code, or models and information about software, said query comprising an initial concern;
 - means for displaying the results of the query, said results comprising a related concern having a relationship with said initial concern, at least one of the initial and related concerns comprising an artifact other than source code,
 - means for automatically computing a content of said related concern based on said initial concern and said relationship between said initial and related concerns; and
 - means for updating the query when at least one of new artifacts are introduced, artifacts are deleted, and artifacts are changed.

21. (Original) The system of claim 20, wherein said results of said query comprise a concern.

22. (Currently amended) A method of identifying concerns, comprising:
specifying an initial concern in a software system;
using the initial concern to explore artifacts in said software system and, based on a result of said using the initial concern to explore artifacts in said software system, identifying a related concern in said software system having a relationship with said initial concern, at least one of the initial and related concerns comprising an artifact other than source code, said identifying said related concern comprising [[]] automatically computing a content of said related concern based on said initial concern and said relationship between said initial and related concerns;
displaying said initial concern and said related concern; and
navigating said software system in an integrated development environment (IDE),
wherein said relationship comprises at least one of a call to said initial concern and a call from said initial concern,
wherein said specifying said initial concern comprises using a query tool for inputting a query, such that said initial concern is returned as a result of said query,
wherein said identifying said related concern comprises automatically generating said related concern, and
wherein said initial concern comprises at least one of an extensional concern and an intensional concern.

23-27. (Canceled)

28. (Currently amended) A method of generating concerns, comprising:
identifying a first concern in a software system;
examining a program using said first concern and text of said program;
identifying a second concern in said software system based on a result of said examining said program using said first concern and text of said program, at least one of the

first and second concerns comprising an artifact other than source code said identifying said second concern comprising [[:]] automatically computing a content of said second concern based on said first concern and said relationship between said first and second concerns; and displaying and navigating concerns in an integrated development environment (IDE)

29. (Currently amended) A programmable storage medium tangibly embodying a program of machine-readable instructions executable by a digital processing apparatus to perform a method of identifying concerns, said method comprising:

specifying an initial concern in a software system;

using the initial concern to explore artifacts in said software system and, based on a result of said using the initial concern to explore artifacts in said software system, identifying a related concern in said software system having a relationship with said initial concern, at least one of the initial and related concerns comprising an artifact other than source code, said identifying said related concern comprising ~~;~~~~and~~ automatically computing a content of said related concern based on said initial concern and said relationship between said initial and related concerns.

30. (Currently amended) A method for deploying computing infrastructure in which computer-readable code is integrated into a computing system, such that said code and said computing system combine to perform a method of identifying concerns, said method of identifying concerns comprising:

specifying an initial concern in a software system;

using the initial concern to explore artifacts in said software system and, based on a result of said using the initial concern to explore artifacts in said software system, identifying a related concern in said software system having a relationship with said initial concern, at least one of the initial and related concerns comprising an artifact other than source code, said identifying said related concern comprising ~~;~~~~and~~ automatically computing a content of said related concern based on said initial concern and said relationship between said initial and related concerns.

31. (Previously presented) The system according to claim 1, wherein said initial concern and said related concern comprise a part of said software system which relates to some concept, goal, purpose or requirement.

32. (Previously presented) The system according to claim 1, wherein said initial concern and said related concern comprise at least one of a feature, component, variant, user interface, instrumentation, first-failure data capture, quality of service, security, and policy.

33. (Previously presented) The system according to claim 1, wherein said related concern is automatically computed by exploring artifacts in said software system to determine said relationship by using one of pattern-matching and data mining.

34. (Previously presented) The system according to claim 1, wherein at least one of said initial concern and said related concern comprises a unified modeling language (UML) artifact.

35. (Previously presented) The system according to claim 1, wherein said identifying said related concern comprises generating a concern model which represents said initial and related concerns, a relationship between said initial and related concerns, and a constraint on said initial and related concerns.

36. (Previously presented) The system according to claim 35, further comprising:
a concern explorer for viewing, navigating and querying said concern model.

37. (New) The method of claim 22, wherein said specifying said initial concern comprises defining a query language comprising a set of operators and evaluation properties that together work to identify concerns within different artifacts that make up the software system,
wherein said identifying said related concern comprises automatically generating said related concern by exploring artifacts in said software system to determine said relationship by using one of pattern-matching and data mining, and

wherein at least one of said initial concern and said related concern comprises a unified modeling language (UML) artifact.

38. (New) The system according to claim 36, wherein at least one of the initial concern and the related concern is displayed by the concern explorer as an abstract representation which includes manipulatable building blocks and is mapped back to source code, and

wherein the concern explorer allows a user to encapsulate a plurality of artifacts in the related concern which results in a logical separation of concerns, extract a plurality of artifacts from the related concern, and compose a concern from the plurality of extracted artifacts.